

nonmagnetic spacer layer, the first ferromagnetic layer having a magnetization direction at an angle relative to a magnetization direction of the second ferromagnetic layer at zero applied magnetic field, the second ferromagnetic layer comprising first and second ferromagnetic films antiferromagnetically coupled to one another and an antiferromagnetically coupling film located between and in contact with the first and second ferromagnetic films for coupling the first and second ferromagnetic films together antiferromagnetically so that their magnetizations are aligned antiparallel with one another and remain antiparallel in the presence of an applied magnetic field, the magnetization of the first ferromagnetic layer freely rotating in a magnetic field signal; and

a nonmagnetic high-conductivity layer disposed in contact with the first ferromagnetic layer so that the first ferromagnetic layer is disposed between the nonmagnetic high-conductivity layer and the nonmagnetic spacer layer

32. The magnetoresistance effect head of claim 31, further comprising upper and lower magnetic shields sandwiching the magnetoresistance effect element through respective one of upper and lower magnetic gaps, wherein an average surface roughness of an upper surface of the lower magnetic gap is smaller than thickness of the antiferromagnetically coupling film.

33. The magnetoresistance effect head of claim 31, wherein the distance between a center of film thickness of the first ferromagnetic film and one of the pair of magnetic shields through the nonmagnetic high-conductivity layer is equal or smaller than a distance between the center of film thickness and another one of the pair of magnetic shields through the second ferromagnetic film.

34. A magnetic recording and reproducing head, comprising a magnetoresistance effect element having a nonmagnetic spacer layer, first and second ferromagnetic layers separated by the nonmagnetic spacer layer, the first ferromagnetic layer has a magnetization direction at an angle relative to a magnetization direction of the second ferromagnetic layer at zero applied magnetic field, the second ferromagnetic layer comprising first and second ferromagnetic films antiferromagnetically coupled to one another and an antiferromagnetically coupling film located between and in contact with the first and second ferromagnetic films for coupling the first and second ferromagnetic films together antiferromagnetically so that their magnetizations are aligned antiparallel with one another and remain antiparallel in the presence of an applied magnetic field, the magnetization of the first ferromagnetic layer freely rotating in a magnetic field signal; and

a nonmagnetic high-conductivity layer disposed in contact with the first ferromagnetic layer so that the first ferromagnetic layer is disposed between the nonmagnetic spacer layer and the nonmagnetic high-conductivity layer; and

a magnetic recording head comprising a magnetic pole and a coil for providing said magnetic field signal to the magnetic pole.

35. A magnetic head assembly, comprising

a magnetoresistance effect head including a nonmagnetic spacer layer, and first and second ferromagnetic layers separated by the nonmagnetic spacer layer, the first ferromagnetic layer having a magnetization direction at an angle relative to a magnetization direction of the second ferromagnetic layer at zero applied magnetic field, the second ferromagnetic layer comprising first and second ferromagnetic films antiferromagnetically coupled to one another and an antiferromagnetically coupling film located between and in contact with the first and second ferromagnetic films for coupling the first and second ferromagnetic films together antiferromagnetically so that their magnetizations are aligned antiparallel with one another and remain antiparallel in the presence of an applied magnetic field, the magnetization of the first ferromagnetic layer freely rotating in a magnetic field signal, and the magnetoresistance effect head also including a nonmagnetic high-conductivity layer disposed in contact with the first ferromagnetic layer so that the first